UNITED STATES DEPARTMENT OF AGRICULTURE
Weather Bureau
Washington

MINUTES OF CONFERENCES HELD AT KANSAS CITY, MISSOURI, BETWEEN WEATHER BUREAU AND CIVIL AERONAUTICS AUTHORITY REPRESENTATIVES DURING THE WEEK BEGINNING NOVEMBER 28, 1938.

MONDAY, NOVEMBER 28, 1938

1. Organization: The meeting was called to order at 9:30 a. m., by Mr. D. M. Little, who acted as Chairman throughout all meetings, with the following persons present:

Messrs. D. M. Little	Messrs. L. A. Warren
E. B. Calvert	C. G. Andrus
E. H. Bowie	W. Reed, Jr.
P. A. Miller (acted as secretary in all meetings)	J. C. Smith
	J. A. Riley
	S. Lichtblau
V. E. Jakl	G. Jefferson
E. M. Barto	M. A. Emerson
H. P. Adams	M. C. Harrison
H. M. Hightman	A. R. Lowery
G. M. French	A. M. Hamrick

2. Inspection Committee Appointed: Mr. Little appointed the three Inspectors present, Messrs. Emerson, Harrison and Lowery, as a committee to study inspection procedure and develop a set of instructions for inspection work. Mr. Harrison was appointed as chairman of this committee. In this connection, Major Bowie suggested the extension of the old inspection forms to the airway work and a telegram was sent to Washington, requesting that copies of these forms be provided. These were later received and turned over to the Inspection Committee.

3. 1940 Estimates Explained: Mr. Little explained the proposed estimates for 1940 to the entire conference, pointing out that the name of the sub-appropriation is now "Airway Weather Service and Research" instead of "Aerology".

4. Priority of Establishment of Stations Under 1940 Estimates: As it is possible that the Congress would not approve all stations included in these estimates, the general supervising officials present were requested to furnish a list of airport stations in their districts in the order of priority in which such stations should be established if cuts were made in

the Budget Bureau's estimates by the Congress. This same request was made in connection with the new three-hourly stations to be established under the program as approved by the Budget Bureau, both lists to be forwarded to the Central Office by February 15, 1939.

5. Present Pacific Ship Reporting Service Explained: In order to have a complete understanding of any new service that might be established in the Pacific Ocean, Major Bowie explained, in some detail, the Pacific ship reporting system.

6. Policy of Relations With Navy Department Regarding Ship Observation Collections: After considerable discussion of the matter of collection of ship reports in the Pacific and the Atlantic, it was agreed that it was advisable that all relations with the Navy Department in connection therewith in the Pacific be handled through the San Francisco Weather Bureau Office, and all such matters pertaining to the Atlantic Ocean be handled through the Central Office in Washington.

7. Possibility of Earlier Radiosonde Observations Discussed: When discussing the proposed estimates for the establishment of four maps and forecasts a day next fiscal year, the question of advancing the time of making the radiosonde observations to permit their use in connection with the 1:30 a. m. maps was discussed. However, since this involved far-reaching changes in the present set-up of the bureau and there is no assurance that funds for the four maps and forecasts a day will be forthcoming for next fiscal year, no definite plan could be formulated and it was left for later consideration by those concerned.

8. Proposed Plan for Relieving Airport Stations of Requests for General Weather Information: The final point discussed in connection with the estimates was that of teletype at city offices and in connection therewith, the matter of present requests of the public to certain airport stations for general weather information was brought up. After considerable discussion, it was decided that one plan to relieve this situation in two important areas, would be to have the San Francisco and New York Weather Bureau Offices placed on the Oakland and Newark telephone exchanges, respectively. This would then permit residents of Newark and Oakland to contact the New York and San Francisco offices direct by telephone, without toll charges, for general weather information, and it was the consensus of opinion that this would considerably relieve the stations with respect to furnishing general weather information now existing at the Newark and Oakland offices. Major Bowie of the San Francisco office was agreeable to the proposition and it was decided that Mr. Calvert of the Forecast Division, would take the matter up further with the New York office.

9. Assignments to Air Mass Classes: Next was discussed the matter of assignments to the Air Mass classes in Washington, the present policy being explained by Messrs. Calvert and Little.

10. Request for Air Mass School at San Francisco: Major Bowie requested that if at all practicable, an instruction school, such as maintained in the Air Mass Section at Washington, be established at San Francisco to deal with the peculiar problems arising in connection with the Pacific Coast and Oceanic weather. This was favorably regarded by those present but it appears that no particular person was available at present for this duty and the matter was, therefore, left with the idea that it would be considered at some future time, if practicable.

11. Standard Atmosphere Pressures for Setting Sensitive Altimeters: In order to have a complete report by the end of the week, the proposed circular concerning the program of Standard Atmosphere pressures for the setting of sensitive altimeters was turned over to Mr. C. G. Andrus for perusal and study. It developed later in the week, however, that due to the length of the circular, Mr. Andrus was not able to give this complete consideration and, therefore, a copy was turned over to him for his further study and report after his return to his station at Cleveland. It is expected that a complete report in the matter will be received from Mr. Andrus about January 1, 1939.

12. Administration of Service in the Field: The next subject taken up was procedure with respect to administration of stations and airway service from the viewpoint of the Central Office. In this connection, the necessity for complete cooperation with the Civil Aeronautics Authority, where stations of that agency are involved, was stressed by Mr. Little. Two other points were brought out quite definitely, these being that in all practicable cases, matters concerning airway service should be handled in the field, as far as possible, and that in making recommendations to the Central Office, these be couched in concise language and not be intermixed with a large number of other subjects. It was also pointed out that it would speed up administrative work from the viewpoint of the Central Office, if attention were given to the writing of letters of recommendation on separate subjects separately; that is, recommendations relating to instruments be made the subject of one letter; recommendations relating to personnel should be placed in another letter, etc. The necessity for this was carefully explained and it is believed that a good understanding thereof was gained by all concerned.

13. Qualifications for Forecasters and Selection Thereof: In discussing the qualifications of personnel for various positions in the airway field service, the matter of selection of forecasters was taken up first. Mr. Jakl suggested that a man be kept in training at all times at the general supervising stations for forecast work, this man to be an extra man on the station. However, this was not considered practicable as funds are not available for the assignment of such additional people. Mr. Lichtblau then

suggested that the Junior Meteorologist to be added next year - in the event that funds are appropriated therefor- be considered as a forecaster in training at the general supervising stations. In general, however, it was agreed that forecasters should be of a positive nature and able to express tersely and clearly his forecasts after decision has been made as to the conditions which would prevail. Mr. Little then brought up the question as to whether we could depend upon the general supervising officials for selection of new forecasters from time to time, and the consensus was that this could be done. In doing this, however, Mr. Little specifically stated that he desired the opinion of the first assistant on the general supervising station also to be considered in connection with such selections.

14. Furnishing of Practice Forecast Records to General Supervising Stations to Assist in Selection of Qualified Forecasters; In connection with such selection, the question of supplying general supervising stations with practice forecast records of people in their district was brought up. After considerable discussion, it was the opinion of Mr. Calvert and others particularly concerned, that such records should be and could be furnished, these to be held confidential at the general supervising stations in all cases. It is understood that any action in connection therewith should be inaugurated in the Forecast Division.

15. Use of Forecasters as Administrative Assistants: The next question arising in connection with the set-up of personnel at general supervising stations was connected with the administrative units. Discussion disclosed that in most cases, forecasters were being used alternately on administrative duty and forecast duty. However, it was felt by all present that as a general policy, the forecasters should remain permanently on forecast duty and that a permanent administrative assistant should be selected and used in that capacity. This is a question for working out by the general supervising officials at their particular stations.

16. Lack of Sufficient Personnel at General Supervising Stations: It was brought out by the general supervising stations that there is not a sufficient number of employees now assigned to the centers to perform all required work. Mr. Little advised that it is contemplated, under the 1940 estimates, to add an additional Assistant Meteorologist to each such station, and if funds would permit, to add a stenographer also. It was agreed then that since a stenographer would relieve the administrative units of all typing and filing and thus permit the accomplishment of this work expeditiously and efficiently, the new Assistant Meteorologist would be assigned to the Forecast Unit. It was agreed that in most cases this position would be filled by promotion of a present Junior Meteorologist, and new people who had passed the Junior Meteorologist examination then would be brought in to fill these vacancies. Major Bowie sug-

gested the desirability of a Physicist and Analyst at each forecast center, but while there was no disagreement concerning the desirability of this, it did not appear that action could be taken in this direction, due to a lack of funds and trained personnel. Mr. Andrus gave it as his opinion that a force of eighteen people is necessary at each general supervising station to perform the required work. As a final recommendation, it was agreed that an Assistant Meteorologist, Junior Meteorologist, and a stenographer should be added to such stations next fiscal year, provided that funds are available. It was agreed that the stenographic positions could best be filled by women, for reason that little hope for advancement could be held out and men would soon become dissatisfied.

17. Bureau Examinations for Filling Junior Meteorologist Positions: In the above connection, Mr. Jakl suggested examinations in the bureau, for the personnel in the bureau, to determine their qualifications for advancement from Observer or Senior Observer to Junior Meteorologist, in order that such people might have an equal chance with other persons on the outside who might also take the Junior Meteorologist examination. Discussion developed that the general consensus of opinion was that such Observers or Senior Observers should have a college education or the equivalent thereof, and that he must make a good grade on his examination in order to be considered for promotion to the Junior Meteorologist grade.

18. Temporary Assignments of Personnel to General Supervising Stations in Emergencies: In connection with the shortage of personnel at general supervising stations, Mr. Little pointed out that it was quite possible for the force of such stations to be augmented temporarily by the detail of the Official in Charge of a small one-man airport station for temporary duty in emergencies. This was not to be made a general practice, however.

19. Early Completion of Weather Maps: One of the problems confronting the general supervising stations was the completion of weather maps in sufficient time for use of the forecaster and distribution to other parties concerned. After discussion, it was the consensus of all concerned that the best plan is to have two men work simultaneously on the same map, one man taking half of the map and another man taking the other half of the map for completion. It was agreed that this plan would be put into effect at the general supervising stations, subject to the limitations of personnel and other factors.

20. First Assistant to be in Charge When General Supervising Official Absent: Further, with regard to the administration of general supervising stations, it was agreed that the first assistant and supervising forecaster were to be in charge at all times when the Official in Charge is away from the station.

21. Training of First Assistant and Supervising Forecaster in Administrative Duties: In order to have supervising forecasters properly trained in administrative work, it was the unanimous opinion that there should be an exchange of duties occasionally between the Official in Charge and first assistant.

22. Qualifications and Work of Inspection Personnel; Rotation of Inspection Work: The next subject taken up was whether Inspectors should also be forecasters and should the inspection service be rotated among the forecast personnel of the general supervising stations. After considerable discussion, it was agreed that the regularly-appointed inspectors should do 50% of the inspection and the other 50% should be handled as the Official in Charge sees fit. It was also agreed that the Official in Charge could take over inspection trips at any time that he felt this was necessary by reason of problems at various stations, necessity for familiarity with stations concerned, etc.

23. Need for Strengthening of Inspection Units: A strong plea was made by Mr. Harrison for the strengthening of the inspection units in order that this work may be accomplished more efficiently and expeditiously. His suggestion specifically was that two men and one more truck be added to the general supervising stations. However, lack of funds was stressed in this connection and it was left for future consideration.

24. Methods of Development of Initiative Among Subordinate Employees: Concerning the method of developing initiative in employees, it was generally agreed that one of the best methods was by the holding of meetings or seminars at regular intervals. At most stations, this is done on a bi-weekly, or weekly, basis and it appears that much progress is being made in this direction. Further, in connection with development of initiative and experience in employees and training these employees properly, it was decided that the observers on general supervising stations should draw, whenever possible, the three-hourly maps between the regular six-hourly maps. This would give these personnel training in map preparation which they now do not have.

25. More Opportunity Needed for Making Practice Forecasts for Official Verification: It was generally recommended that more opportunity should be given the personnel of such stations for making practice forecasts for official verifications. Mr. Calvert explained the difficulties in enlarging the present authority, due to the lack of personnel for verification at the Central Office. It was agreed that effort should be made to have practice forecasts made by men showing the best ability. It was thought that the recommendation of general supervising officials in connection with airport candidates each year would be helpful. All general supervising officials present were requested to look over the proposed list of practice forecast personnel for the calendar year 1939, and indicate their agreement or disagreement with the selections made of personnel in airway work in their particular districts.

26. Proposal to Limit Lowest Grade at General Supervising Stations to Assistant Observers: The suggestion was advanced that, as far as practicable, Assistant Observers be the lowest grade personnel assigned to the general supervising stations.

27. Permanent Appointment of Probationary Employees: The importance of giving a complete picture of the service to be performed by a prospective employee on the first interview, was stressed and also the fact was forcibly brought out that Officials in Charge should be completely informed of the candidate's mental and physical ability to perform required duties before being given a favorable rating and recommendations for permanent appointment by the Official in Charge.

28. Duties and Responsibilities of First Assistants at Airport Stations: It was agreed that first assistants should be held responsible jointly with the Official in Charge for the condition of the station. He should, at all times, take an interest in the station to the extent of making certain that all things are progressing smoothly and, in all cases, should prepare the work schedules of the personnel. All correspondence should be read by first assistants and Officials in Charge should make certain that their first assistants are fully informed concerning all matters relating to the work of the station.

TUESDAY, NOVEMBER 29, 1938

The session was called to order at 9:00 by Mr. Little.

29. Letter of Thanks to Custodian and Mr. L. A. Warren: Action was taken to write a letter to the Custodian of the Federal Building at Kansas City, thanking him for permitting the conferees the use of rooms in that building and also to forward a letter to Mr. L. A. Warren, Official in Charge of the Kansas City Airport Station, thanking him for his services in connection with obtaining quarters and making many other arrangements in connection with the conferences.

30. Selection of Personnel for Probationary Appointment: It was unanimously urged that all Weather Bureau Offices and Airport Stations be notified promptly concerning forthcoming examinations for Junior Observers. It was also agreed that it would be desirable if a list of three candidates for any particular position be submitted to the Official in Charge concerned, as in many cases, he has a personal knowledge of the desirability and capability of the prospective appointee. It was not known whether this would be practicable or not and the matter is, therefore, referred to the Office of the Assistant Chief for consideration.

31. Supervising Forecasters to Assume a Share of Night, Sunday and Holiday Duty: It was agreed that the supervising forecaster at general supervising forecast centers should work from 1/4 to 1/6 of their time on other than day tricks and also that they should assume some Saturday afternoon, Sunday and holiday duty, so that they might be familiar with conditions and duties prevailing at all times of the day and night.

32. Under Observers Selected from Junior Observer Eligible Lists to be Given Opportunity to Prepare Weather Maps; Promotion to Junior Observers: It appears that in some cases, Under Observers who had been selected from the Junior Observer list, were not being permitted by Officials in Charge to prepare weather maps. Since to all intent and purpose, these personnel are of Junior Observer rating, it was agreed that they should be permitted to make maps on the station whenever practicable, this matter to be looked into by the Inspector upon his visits to the various stations. Since many of these Under Observers are of high caliber and the work has increased at many stations to warrant the maintenance of a higher grade official at those points, it was tentatively agreed that the supervising officials could make recommendations to the Central Office for the promotion of such Under Observers to Junior Observers as air traffic and other conditions require.

33. Methods of Handling Grievances: In general, the opinion was that such matters would be handled directly with the men involved, by the Official in Charge of the station, or by the supervising officials should the latter course be necessary. Inspectors also should look into such matters but in no case with a partisan or critical attitude. Rather, they should act entirely from the viewpoint of wanting to help to solve the problems at any particular station where such matters arise.

34. Inspectors to Address Letters to Stations to be Visited at Least Two Days in Advance of Visits: In order to place the inspection service upon a high plane and to avoid any suspicion of "sleuthing" activity, it was agreed that in all cases the Inspectors shall address letters to stations to be visited at least two days in advance of the visits.

35. Duties of Inspectors in Connection With Proper Administration of Airport Stations; Training of First and Second Assistants in Administrative Work: In connection with the training of personnel, the Inspectors were also to see to it that the first and second assistants at any stations are to be trained in station administration so that the work of the station might go forward smoothly in the absence of the Official in Charge. It was also emphasized that there is no reason why administrative duties, such as correspondence, preparation of vouchers, etc., should not be turned over to the first assistant by the Official in Charge, in order that these personnel may be trained in all phases of the work. It was further agreed that Inspectors, upon

their visits to stations, were to remain long enough to interview all personnel and to give such personnel hearings concerning grievances, if necessary.

36. Staggering of Hours of Duty: Several points involving difficulties were brought out by the officials concerned. In order to clarify the matter, Mr. Andrus was delegated to prepare a statement of difficulties encountered under present regulations for transmission to the Central Office at a later date.

37. Furnishing of General Weather Information by Airport Stations: It appears that this situation is peculiarly critical at points in large metropolitan areas where the airport station is located in another city, such as Newark and Oakland. It was considered that this could be solved, in part, by the suggestions previously made of placing New York and San Francisco Weather Bureau Offices on the Newark and Oakland exchanges, respectively, but even this would not solve the cases where the airports are located in the same city where the regular Weather Bureau Office is located. The direct question was brought up as to whether airports should furnish general weather information and in discussion thereof, Mr. Calvert stated that the furnishing of such information should always be on a common sense basis; that is, give information when circumstances require this to be done, such as newspapers, police, fire departments, highway departments, situations where individuals whoever they may be, have serious and justifiable need for the information, etc. Mr. Andrus suggested more flexibility in city office hours to cover the rush periods of the day with regard to furnishing of weather information from city offices and Mr. Calvert stated that careful consideration is to be given to this problem by the Central Office Airport Committee.

38. Plan for Routing of Telephone Calls Through Central Switchboard: Another plan advanced was that of instituting a central telephone exchange at the Weather Bureau Offices in the city, where calls for aviation information could be routed to the airport and other calls for general weather information be handled direct by the city office, all calls coming in after say about midnight to 6 a. m., to be routed to the airport station. No definite commitments were arrived at in connection with this problem, and it is believed that it will be largely solved in the future, due to the expected extension of service to longer periods of hours at city offices and the installation of receiving-only teletype drops on the long lines at Weather Bureau city offices. However, it was agreed that it would be advisable to try out this plan at Chicago, where a switchboard is now in use and there are Weather Bureau employees on duty for at least eighteen hours daily.

39. Use of Emergency Assistance: It was explained by Mr. Little that extensive use of emergency assistance cuts largely

into the funds available for promotions and for taking care of other necessary work. The Inspectors were asked to impress all Officials in Charge of airport stations in their districts with the necessity for holding requests for emergency assistance to an absolute minimum. In all cases, it would be necessary that the Official in Charge obtain prior authority for emergency assistance before taking any action to employ persons in this capacity.

40. Annual Leave for Airway Observers: The circular on this matter was passed around to be read by all concerned. There seems to be no difficulty in connection therewith that could not be adjusted by the officials in the field.

41. Personnel Complements at Intermediate Airport Stations and at RAOB Stations: Discussion revealed that the present five-man force was not sufficient to cover all tricks under all conditions at airport stations, and it was proposed that action be taken to increase the normal complement of airport stations from five to six men whenever this becomes practicable. It was also agreed that the radiosonde work would require two men in addition to the regular complement of any airport station. It was also agreed that, in general, the grade of Official in Charge at important airport stations should be Assistant Meteorologist.

42. Transfers of Personnel With "Within-Grade" Promotions: In some cases, when a man is being transferred from a station because of inability to fulfill the requirements for certain work, he is often given a $100 promotion in connection with this transfer. In many cases this results in this particular person receiving a higher salary than other more qualified men, and has given rise to some unrest among the employees at certain key airport stations. All officials agreed that it would be well to look into the matter directly before granting $100 increases upon transfers occasioned by the inability to perform certain duties at the employee's former station.

43. Informing General Supervising Stations of Personnel Changes in Their Districts: Some of the general supervising officials pointed out that they are not informed concerning personnel changes at stations in their districts until after such changes have been consummated and it was requested that if at all practicable, copies of letters concerning the transfer or promotion of personnel be sent the general supervising stations concerned.

44. Examination of Efficiency Ratings in Promotions of Employees: In the general connection with transfer and promotion of personnel, it was urgently requested by officials present that the efficiency ratings of the personnel involved be given a thorough examination in connection therewith. Much interest was expressed as to whether there is a field efficiency record and, if so, how it is prepared.

45. Issuance of Certificates of Authority to Take Airway Weather Observations: It was agreed that a standard list of questions on Circular N and other subjects, should be made up from lists to be furnished by supervisors. These list of questions would then be furnished to the general supervising stations and in examining personnel for the issuance or continuance of Certificates of Authority, it was thought proper that each person should be given 25 questions, four points being subtracted for each question missed. If, upon such an examination, a prospective or present observer made a grade of 95% or over, it was agreed that they should be excused from further examination for one year. In qualifying for the issuance of a Certificate of Authority or continuance thereof, it was the consensus of opinion that 80% should equal a passing grade, with two or three chances being given for observers who fail on their first test at the same visit of the Inspector. Supplementary to the written test, it was agreed that each observer should be given a practical experience test to determine his fitness to observe and report conditions correctly. The amount of time given for the taking of any examination would be within the discretion of the Inspector or other person giving the examination, but, in general, it was agreed that a limit of about two to three hours should be made. One point brought out in connection with the issuance of the Certificates was the fact that these are effective at only one station and it was suggested that the Certificates be so worded as to provide authority for the taking of observations at all necessary stations within any one Weather Bureau general supervising district, as may be determined within the discretion of the general supervising official.

46. Airway Forecasts: The matter of airway forecasts was discussed at some length, particularly with reference to the form in which the forecast should be issued. Several plans were advanced, but upon consideration it was found that all were deficient in some respect as regards the varying problems over the entire United States. After considerable discussion, it was the unanimous opinion that all forecasts should be of one type and that, in general, the present types of forecasts, that is, regional and terminal, were satisfactory and should be continued. It was, agreed upon, however, that winds aloft should be included in the forecasts whenever frontal structures are present and no current upper-air information was available and the winds aloft can be determined by other means, such as temperature and pressure fields. If no frontal structures are present, a statement should be made in regional forecasts concerning the increase, continuation or decrease of current winds over the district. Since there is some question concerning the actual fitness of the present type forecast, it was thought that it would be advisable to sound out the airlines and private flyers in order to find out what is wanted in the way of Weather Bureau forecasts and each district supervisor was requested to do this and furnish a further report to the Central Office within the next few months. The various district supervising officials were also to furnish an outline of forecast systems which they propose to the Central Office for consideration.

47. Transmission and Form of Terminal Forecasts: The question arose concerning the segregation of terminal forecasts to the circuits on which the stations to which they apply are located. The general supervising officials will look into this and forward recommendations to the Central Office for such segregations. The matter of symbolizing terminal forecasts in order to render these in a shorter form was discussed and Mr. Miller was requested to work on this and make a report. However, later developments indicated that there would be ample time for transmission of forecasts in their present form and since the symbolizing would have a tendency to make it difficult for the forecaster to properly word his forecast and also be inherently liable to transmission errors, it was agreed that no change should be made in this at the present time. The possibility of using a forecast code was discussed but this was not considered a good plan and further consideration of this was dropped. Mr. Andrus then suggested the use of "classification" weather terminal forecasts; that is classify the weather in the forecast as "contact", "instrument", or "closed" and it was agreed to give this matter consideration after the present classification methods had been in use for a longer period. The final conclusion was that terminal forecasts should be continued for the present in plain English, with abbreviations as now provided for various words being used.

48. Verifying Systems for Airway Terminal Forecasts: The possibility of establishing a system of verifying terminal forecasts was discussed. Mr. Calvert agreed that some such system should be established, in order to provide a method of evaluation of the ability of various practice forecasters and of official forecasters. Three plans were advanced to accomplish this, all of which contained considerable merit and these plans were referred to a Committee, consisting of Messrs. Riley, Jakl, Andrus and Miller, for consideration, with Mr. Riley acting as Chairman. After examining these plans, this Committee decided it would be best to try out each of them in one or more districts, to determine their relative values, and accordingly, the plan developed by Mr. Vernon will be tried out in the Oakland district; that developed by Mr. Marks of the Chicago office will be tried out in the Chicago district, and that developed by Mr. Andrus tried out in the Cleveland district, for a period of three months, after which a report will be forwarded to the Central Office from each district.

49. Transmission of State Forecasts on Teletype Circuits: It was found that in many cases, forecasts for certain areas are being transmitted to extremely far distant areas where the forecasts would have no value in connection with airways, or other service. As an example, it was found that the New England forecasts were being transmitted as far west as Fort Worth, Texas. Accordingly, all supervisors present were requested to make up a list of State forecasts which should be transmitted on the various teletype circuits in their districts and these will then be coordinated by the Central Office to provide the proper distribution of State forecasts by teletype for all purposes.

WEDNESDAY, NOVEMBER 30, 1938

50. Proposed Numeral Code: The proposed code was explained by Messrs. Calvert and Little. However, it was decided that very little could be done in open meeting in connection with the code and action was taken, therefore, to obtain individual opinions of the supervisors by notes on the copies furnished by Mr. Calvert. It is understood that the notes have been turned over to the Forecast Division for consideration of inclusion in the revised Code to be issued, effective April 1, 1939.

51. Instruction of Observers in Use of Numeral Code: The question of how much time would be required to instruct observers in the use of the new code arose and the consensus was that this would require from one to two months. Accordingly, it was recommended that the date for placing the new code into effect be not earlier than April 1, 1939.

52. Exchange of Inspection Reports Between Districts: One suggestion made, in connection with reports that might be rendered by Inspectors, was that these be exchanged between districts in order that all may have a good conception of the work as carried on in other districts. This was left up to the discretion of the various supervising officials concerned.

53. New Designation to Substitute for "Inspector": Also, it was agreed that the name "Inspector" does not truly represent the work of these officials and in some cases, leads to misunderstanding of their duties. Accordingly, the responsible personnel present were requested to consider other names that might be suitable to cover this work and which would eliminate the term "Inspector". This was later agreed upon as "Field Assistant", but this is to be given further consideration by the supervising officials and recommendations made to the Central Office by letter.

54. Barometric Comparisons Between Inspectors and Locations of Substandard Barometers: The matter of comparisons of barometers between the inspection personnel was referred to the Inspection Committee for report. Also, the location of standard barometers was referred to this Committee and in a later report, they recommended that new substandards be located at the following named places:

Washington, D. C. - Now installed
Chicago, Ill. - Now installed
Memphis, Tenn.
Cheyenne, Wyo.
Missoula, Mont., or Spokane, Wash.
Burbank, Calif.
Omah, Nebr.
Medford, Oreg.
Philadelphia, Pa. - Now installed

55. Use of Open-Scale Barograph Readings in Lieu of Aneroid Barometer Readings: The suggestion was made that wherever open-scale barographs were located, the readings from such instruments be substituted for aneroid barometers in the reports as transmitted from that station. This developed considerable discussion, the consensus being that it was advisable to do this in all practicable cases and it was, therefore, adopted as a policy, subject to confirmation by the proper Central Office authority. The fact was brought out that the aneroids not required at airway stations can be used to good advantage in ship observation service.

56. Difficulties Experienced in Use of Open-Scale Barographs: One objection brought up in connection with the use of the open-scale barographs for the above purpose was that of the variation of the viscosity of the dash-pot liquid with changes in temperature and which apparently has a direct effect upon the lag of the record made by the open-scale barograph; also, that there is considerable friction, due to the paper and mechanical factors involved in the open-scale barograph. It was decided that these points should be made a part of this report and thus be brought to the attention of officials of the Central Office concerned directly in the barometry program, particularly Messrs. Mears and Harrison.

57. Installation and Use of 12-Volt Ceiling Projector: Delay in obtaining the new 12-volt type projectors was explained by Mr. Little. Also, the matter of determination of ceilings during daylight hours by use of a modulated beam from projectors was explained and discussed.

58. Airway Base Maps: The matter of suitable base maps for airway use was taken up, and it was agreed that the maps should conform to the following:

Scale - 1 to 7,500,000

Topography to be indicated in a similar manner to that now used on the Air Transport Association map.

International symbols and Beaufort scale to be printed on the map.

Numeral designators for all stations in Canada, the United States, Mexico, etc., to be printed on the map as near to the station circle as possible.

No rivers to be shown on the map, except for State lines.

Latitude and longitude lines to cover all land areas for every 5°, with 1° steps to be indicated on latitude lines over land areas, such lines to be quite short.

Circles to be increased in size in proportion to the base scale increase.

1° spaces over water areas with pronounced 5° lines.

Frequent numbering of 5° lines in all areas.

Color - blue-green and brown-buff.

Paper - Both heavy and thin.

Maps to be on ditto machine-size paper, that is, not larger than 22 x 36 inches.

59. Report From Outside Borders of Airway Base Maps to be Eliminated in Teletype Transmissions: In order to prevent the sending of reports, with consequent waste of teletype time for stations outside the borders of this map, it was agreed that the Central Office would contact the Chicago Weather Bureau Office and request elimination of such reports from the teletype transmissions. It was also agreed that Pacific ship reports are not to be sent east of Chicago, Kansas City and Fort Worth, and Atlantic ship reports should not go west of those points. Further, since northeastern Canadian reports are of little value in the western portion of the country, it was agreed not to transmit such reports to the west of Chicago, Kansas City and Fort Worth.

60. Upper-Air Wind Maps: Considering the subject of upper-air wind maps, it was the consensus of opinion that these maps should be about one-fourth larger than at present and that the present cloud charts thereon should be eliminated to provide space for making the individual maps larger. Also, the circles should be small and no topography should appear on the maps; that is, they should be plain, blank outline maps. Both buff and green were considered as satisfactory colors.

61. Proposed Rules for Preparation of Upper-Air Maps: In discussing the preparation of these maps, it was found that there was no uniform system outlined for use for all stations and the following plan for doing this was agreed upon:

Wind direction should be shown by use of double-barbed arrows, flying with the wind, with the center of the station circle coinciding with

the center of the arrow's shaft. Four barbs on the circle, representing 0°, 90°, 180° and 270°. All wind velocities to be entered in miles per hour and all data would be entered in black. Thus ↗ 25 (southwest, 25 miles per hour).

62. Pacific Base Map: With reference to a suitable map for use in Pacific areas, it was decided that Mr. Smith, in charge of the Seattle Airport Station, would report concerning this.

63. Use of Helium in Place of Hydrogen: The use of helium in place of hydrogen at pilot balloon and ceiling balloon stations was discussed and it was believed advisable to extend the use of helium to all points where the use of hydrogen constitutes a hazard over and above that ordinarily incurred in the use of this gas. However, since the cost of helium and shipment thereof, is considerably greater than that of hydrogen, the supervisors were advised to use discretion in making recommendations in regard to the extension of the use of helium to new stations and limit this to a gradual extension rather than an abrupt one.

64. Form 1083 for Use With New Numeral Code: The matter of forms for airway use was taken up and the first point discussed was the new Form 1083 required in connection with the use of the numeral code. In connection therewith, it was decided that it would be advisable to have telegraph message spaces on Form 103, as revised. Otherwise, this form should be along the general lines as shown on the proposed form available at the Kansas City meetings.

65. Discontinuance of Forms 1136, 1137, 1138, and 1141-Aer.: The matter of continuing the preparation of Forms 1136, 1137, 1138 and 1141 was discussed and due to the fact that we now have a record of these data for a number of years at most points and that their preparation involves a great deal of extra work to already busy stations, it was considered advisable that the preparation of these forms be discontinued at all stations, effective as soon as possible. Action to this end was to be inaugurated at the Central Office.

66. Disposition of Forms 1001-A Prepared at Airport and Second-Order Stations: As considerable use is made of Forms 1001-A, in connection with inquiries made to airport stations, it was decided to ascertain from the Division of Climate and Crop Weather, whether it would be agreeable to have such forms prepared at the airport stations, filed at those airport stations for use, rather than being forwarded to the Central Office and that Forms 1001-A prepared at other stations be filed at the Section Centers for the States in which those stations are located.

67. Filing of Forms 1130-Aer.: Mr. Andrus brought up the problem now involved in the proper filing of Form 1130 and after discussion, it was decided that he should write a letter to the

Central Office, outlining the present problem and making suggestions for the proper permanent filing of these forms.

68. Filing of Forms 1068: Due to the use in research made of Forms 1068 (barograph traces) it was decided that it would be advisable that these continue to be filed in Washington.

69. Entry of Wet- and Dry-Bulb Temperatures on Form 1130: In further discussion of Forms 1130, the question was brought up on the actual entry of wet and dry readings on these forms and it was agreed that this should be done in all cases, columns therefor to be provided at the right hand edge of the form, using some of the space now devoted to remarks, action to be taken at the Central Office for revision of Forms 1130, in accordance with the foregoing. In the meantime, a column is to be ruled on these forms for such use.

70. Width of Forms Furnished for Airway Use: Apparently, forms for airway use should not be more than ten inches wide, in order that they will fit into the typewriter furnished to inspection personnel for use in the field.

71. Method for Identifying Shipments of Supplies, Forms, Etc., at Field Stations: It appears that there is considerable difficulty at field stations in identifying shipments of supplies, instruments, etc., in connection with requisitions submitted by those stations, and it was suggested that, if practicable, the Central Office place a packing slip in each shipment, indicating thereon the number and date of the requisitions involved and the article.

THURSDAY, DECEMBER 1, 1938

72. The morning session was a joint meeting with Civil Aeronautics Authority personnel present, consisting of Mr. Eugene Sibley of the Washington office and the Communications Supervisors from the various Civil Aeronautics Authority districts, as follows:

Mr. C. M. Smith	- Chicago
Mr. C. W. Larsen	- Seattle
Mr. Art Johnson	- Santa Monica
Mr. P. E. White	- Kansas City
Mr. G. L. Rand	- Fort Worth
Mr. B. L. Weinberg	- Atlanta
Mr. R. O. Donaldson	- Newark

Mr. Little explained the Weather Bureau estimates to the assembled group so that all present would have a clear conception of the Weather Bureau's program for 1940.

73. New Teletype Drops and Circuits to be Established by Civil Aeronautics Authority on January 1, 1939: Mr. Sibley of the Civil Aeronautics Authority explained the communica-

tions extensions to be accomplished this fiscal year, with drops to be established on January 1, 1939, or as soon thereafter as practicable, at the following places:

Grand Forks, N. Dak.	Dubois, Ida.
Pembina, N. Dak.	Easton, Wash.
Concord, N. H.	Mormon Mesa, Nev.
Portland, Me.	Arlie, Tex.
Augusta, Me.	Wichita Falls, Tex.
Bangor, Me.	Chillicothe, Ohio
Mankato, Minn.	Clarksburg, W. Va.
Sac City, Ia.	Parkersburg, W. Va.
Sioux City, Ia.	Riverside, Calif.
Sioux Falls, S. Dak.	Golva, N. Dak.
Huron, S. Dak.	Red Bluff, Calif.
Las Vegas, N. Mex.	Brinkley, Ark.
Trinidad, Colo.	Gage, Okla. (for Canadian, Tex.)
Douglas, Ariz.	Burlington, Vt.
Casper, Wyo.	Columbia, S. C.
Sheridan, Wyo.	Augusta, Ga.
Baton Rouge, La.	Anniston, Ala.
Lake Charles, La.	Tuscaloosa, Ala.
Beaumont, Tex.	Palacios, Tex.
Plymouth, Utah	Corpus Christi, Tex.
Dillon, Mont.	Brownsville, Tex.

74. Plan for Instituting Single Sequences in Place of Present Sequence and Code-Sequence Systems: The question of use of present code sequences in connection with the new numeral code and other considerations was taken up. In this connection, Mr. Rand of the Fort Worth district, outlined a plan devised by him and Mr. H. P. Adams of the Weather Bureau, for the running of single sequences, thereby supplanting the present three-group system of sequences and code sequences. Essentially, this plan consists of having all observations for sequences taken so as to begin such sequences at 30 minutes past each hour, the sequences on any particular circuit to be run through on that circuit and then relayed to other circuits as may be required. In order to provide for proper relay of reports needed in air transport clearances and for other purposes, it was indicated that selections should be made of certain reports on each circuit which would be entered first on that circuit and separated from other reports not required on other circuits by five-letter characteristics. Then when relays are to be made, the perforator tape would be cut off at the five-letter characteristics and only those reports required for relays would be sent to the other circuit. At six-hourly and three-hourly periods, it was planned that special code groups would be added to the sequence reports to permit the preparation of complete synoptic maps. Careful consideration of this plan from all angles, including conferences among the Weather Bureau and the Civil Aeronautics Authority people present, indicated that it was entirely feasible and would result in a large saving of teletype time over the system

now in use. Accordingly, it was decided that Weather Bureau general supervising officials would contact the air transport people in their districts with the idea of determining what reports would necessarily have to be relayed from one circuit to another in his particular district for aircraft use, and that a report would then be forwarded to the Central Office for use in making up the final outline of the plan. Messrs. Minser and Parkinson of the TWA, were present and appeared to be in full agreement with this plan, stating that they believed it would involve very little difficulty to the air transport people over the present system. The matter of broadcasts was discussed by the Civil Aeronautics Authority personnel and it was decided that it was practicable for these to be accomplished under this system. After consideration of this plan by the entire group, the meeting was split up into groups of Civil Aeronautics Authority and Weather Bureau employees to consider other problems in connection with communication and weather service. In the Weather Bureau meeting, it was agreed that the use of the symbol sequences as outlined by Messrs. Rand and Adams, with the addition of code groups at the three-hourly and six-hourly periods was entirely satisfactory for all purposes and it was agreed that action should proceed from that point to evolving a workable system.

75. Meteorological Pressures in Sequences and Six-Hourly Reports to be Given in Millibars: In discussing the details of the sequence reports, it was decided that pressures should be sent in millibars. It was recommended that the 5,000-foot pressures, when sent at six-hourly periods, are also to be entered in millibars in units and tenths.

76. Inclusion of "Front Passage" Data in Numeral Code Reports: In connection with the line sequence group in the numeral code, a question developed as to whether this should be used for the sending of the time of passage of cold fronts or front passages, or some other element. It was the consensus of all present that the data to be sent in this group should be the time of the lowest "V-type" pressure reading for the past six hours and that this, in general usage, would be designated as the "front passage". Instructions for this are to be promulgated by the Central Office. It should be stated, however, that there was much doubt expressed by some present as to the need for inclusion of these data in the code.

FRIDAY, DECEMBER 2, 1938

77. Reports From United States Coasts Through Cooperation With Coast Guard: Mr. Little explained attempts to get reports from Atlantic Coast Guard and lightships and also lightships in Alaska. The matter of obtaining reports from the Coast Guard along the Gulf of Mexico was brought up by Mr. Adams and it was decided that this matter should be referred to the Coast Guard in Washington, D. C., by the Central Office. Further, in connection with obtaining Coast Guard reports, it was decided that all Pacific Coast stations were to take up their problems in this connection through the San Francisco office.

78. Synoptic Reports From Air Transport Aircraft in Flight: A proposal of getting synoptic pilot's reports was brought up by Mr. Adams, who explained that in his district he obtains weather reports from airplanes in the air at certain synoptic periods through cooperation with the air transport companies in Cleveland. This suggestion was believed to hold considerable merit and it was the consensus of all present that it should be placed on a permanent basis if practicable. Accordingly, Mr. Andrus will write a report on the matter for the Central Office for further consideration.

79. Accuracy of Instruments Used on Airline Planes: The question of the accuracy of the thermometer and other instruments attached on airplanes was brought up and Mr. Minser of the TWA said that airplane thermometers are quite accurate so long as they are in dry air but as they are exposed to the free air during passage through clouds and precipitation, they act somewhat in the nature of wet bulb thermometers and the readings are not accurate as regards actual air temperatures. He stated that they are experimenting with obtaining humidity records from airplanes by use of regular radiosonde elements now in use of sounding the upper air.

80. Use of Airline Observation Data at Kansas City: At Kansas City, outgoing and incoming TWA planes have been arranged for by the Weather Bureau to report their position, altitude, temperature, clouds, bases and tops of clouds, turbulence, icing, wind and remarks, applying to flights in or near Kansas City and Mr. Hamrick of the Kansas City Weather Bureau Office, states that these have been of extreme value in connection with temperature forecasts for the day. Most of these reports are received about 7:30 or 8:00 o'clock in the morning. It was agreed that the extension of such a system to other points would probably result in more accurate temperature forecasts for the terminals or cities concerned.

81. Pacific Ship Reports Collected by Pan American Airways: Major Bowie made a report on Pacific ship reports collected by the Pan American Airways at Wake, Midway and Guam. These reports apparently are transmitted to their station at Alameda and would be of extreme value to the Weather Bureau service in the Pacific, if obtainable. Also, the suggestion was made that these might be included in radio broadcasts made from San Francisco. Major Bowie will send a copy of a letter from the Pan American Airways, in this connection, to the Central Office, for consideration.

82. Furnishing of Duplicate Copies of Important Correspondence: Several of the general supervising officials brought up the point that duplicate copies of long letters and instructions would save them much typing work where such letters were to be passed on to other agencies or persons and since this also would apply to work at the Central Office, it was agreed that it would be advisable for duplicate copies of correspondence to be furnished in both cases, where the letters were of sufficient importance to warrant this.

83. Mercurial Barometers for Ship Observations: The question was brought up concerning the furnishing of mercurial barometers for ships and it was explained that there are no plans at present to provide such instruments, due to lack of funds. Aneroids only will be shipped in next year's program. Also, it should be noted that there was not much enthusiasm evinced in favor of the use of mercurials; in fact, a high grade compensated aneroid being preferred.

84. Use of Flight Logs: The question of use of flight logs made up by pilots in flight was brough up and it was decided that due to these being out of date in practically all cases, when received, they were of very little use. It was decided, therefore, to concentrate on pilots' reports as made by radio back to their bases and not to adopt the flight log as a regular Weather Bureau procedure of obtaining upper-air data for the present, except where locally desired. Mr. Minser stated that he would look into the matter of standardizing flight logs between various airlines.

85. Wind-Shifts to be Continued in Airway Sequence Weather Reports: It was the unanimous opinion that the reporting of wind shifts should be continued in sequence reports under the new "one sequence" system.

86. Corrections for CS and MR Reports: In connection with CS reports, it was the opinion that the matter of corrections in connection with these was not serious nor could there be a good plan evolved for calling for corrections. It was, therefore, thought advisable to drop the matter of corrections in regard to these particular reports. In connection with the correction of MR reports, however, it was suggested that a letter should be written to the Chicago Weather Bureau Office, asking that the personnel transmitting these reports from that office insert corrections as soon as possible after receipt thereof. Further, in connection with the matter of correction of MR reports, it was suggested that only district forecasters were to call for corrections and that from the standpoint of airway service needs, stations furnishing MR reports should forward corrections by telegraph only if errors requiring corrections were discovered within 30 minutes after the observation was filed. It was suggested that corrections would be in order whenever the following conditions applied:

(a) Errors in barometer in excess of one millibar.

(b) 5,000-foot pressures; same as above.

(c) Precipitation; corrections for errors of .01 or more.

(d) Barometric tendency; if opposite to correct, correction should be sent.

(e) Telegraphic corrections were not to be sent in case of errors in other elements, it being assumed, of course, that the regular mailed error reports would be continued.

87. Proposed Modification of Current Instructions for the Filing of Special Airway Weather Reports: It was the general consensus that our present instructions concerning these are too rigid and require the filing of too many special reports, with no facilities for handling transmissions. Mr. Little thereupon asked Mr. Minser of the TWA to send in his comments to Washington within three weeks and he also requested the general supervising officials to do the same concerning their views, relative to liberalizing the present instructions in regard to special observations.

88. Requests of Airlines for Special Reports at Terminals: The above brought up the question of the airlines at terminal airports desiring the Weather Bureau to change reports so that they might land or take off from that terminal without violating present Civil Aeronautics Authority regulations in this connection. This is a problem particularly involved at busy airports during adverse weather conditions and apparently has resulted in a considerable amount of extra work and confusion, even resulting in criticism of the Weather Bureau by the transport companies at those places. To solve this problem, Mr. Reed of the Newark office proposed that observations at terminals be taken at definite periods and after general discussion, it was agreed that this would be worthy of consideration. One point brought out by Mr. Minser was the fact that on some occasions, at certain stations, frequent special reports are issued by the Weather Bureau, with the visibility given in one as 1/5, and in another as 1/4 mile. As planes may not take off with a visibility of 1/5, but can with one of the 1/4, this has led to considerable trouble and loss of time to the airlines. In his opinion, it is many times very difficult to determine whether the visibility is actually 1/5 or 1/4 mile, and he requested that action be taken to eliminate such situations, if practicable. It was recommended that a letter should be written to all stations concerning this matter, pointing out this difficulty in connection with landings and departures and requesting that issuance of frequent special reports concerning small variations of visibility be eliminated in all practicable cases.

89. Code Card for Use With Numeral Code: Major Bowie proposed that a code card similar to that now furnished for ship observations be furnished to all stations for their use.

90. Handling of Property Accountability at Airway Substations: The subject of property accountability at substations was taken up and it was decided that this should be handled in the manner deemed best by the supervisor, except that it was not to be loaded on city offices, without their complete consent.

91. Property Accountability at Former Cooperative Stations: With reference to property formerly used at cooperative stations, but now constituting a part of off-airway, six-hourly station equipment, due to second-order stations being established at the points in question, it was decided that the accountability for this should be held by the supervisor of the second-order station in question. This change-over is now in progress, under previous instructions issued in Topics and Personnel.

92. Property Accountability at Airway Stations Where Observers are Paid by Weather Bureau: Further, it was the consensus of opinion that property accountability at stations where airway observers are paid by the Weather Bureau, should be held by the station preparing the payrolls.

93. Methods of Eliminating Vibration on Minimum Thermometers: The point was then brought up that there is still considerable vibration of minimum thermometers, even though these are set on a separate post extending through the shelter floor, such vibration arising through the wind acting on the post in most cases. It was thought that a combination of the post method and that used at Indianapolis - whereby the thermometer itself is insulated from this post support by live rubber mountings - would eliminate this trouble to a large extent, and this matter is brought to the particular attention of the Instrument Division for consideration.

94. Action Required in Connection with Airplane Accidents: In case of serious accidents in a vicinity, the observers should be instructed to send in their barograph trace sheets immediately to the general supervising station. However, it was agreed that the present method of telegraphing the reports to the Civil Aeronautics Authority should be continued until other regulations are issued by that organization and a copy of these telegrams should be forwarded by Air Mail to the Weather Bureau Central Office. Further, in cases of accidents involving weather, advice of the accident should be telegraphed to the Central Office. Further, it was decided that to eliminate difficulty in obtaining data concerning weather conditions when accidents are involved, all stations should retain, for a period of 90 days, all material received by teletype at those stations on each particular day, such material to be rolled up, labelled and stored for possible future reference. On days on which serious accidents have been known to occur, the data received by teletype for that date are to be kept permanently at that station.

95. Employment of Airway Observers; Lists of Prospective Appointees: It was agreed that lists of prospective observers were to be kept at general supervising district offices, with proper consultation between the general supervising officials in case of filling a particularly important vacancy.

96. Articles for Publication in "720 Hour Check": Articles for publication in the Civil Aeronautics Authority "720 hour Check", were discussed briefly and Mr. Little pointed out that he believed this was a good way to institute the desire for improved weather reporting service on the part of observers. However, articles written by the Weather Bureau should be of a more or less serious nature and should be instructive.

97. Official Observations at Airport Stations: The consensus of opinion was that the present system of having such observations made at airports at particularly strategic points and where the exposures in the city are poor, is satisfactory. Where observations are taken both at city offices and airports, it is known that there is some discrepancy at times between the reports, and, to this problem it does not appear that there is any general solution, except the use of discretion by officials using the reports from various points. Where the official observations are taken at the airport, it was found that at those places, there is considerable work attached to the telegraphing and changing of sheets and rendering hourly temperature reports by telephone to the city office. In this latter connection, it was the consensus of opinion that when information is to be given out at the city office, this should be determined at the down town office and not requested by telephone as this involves considerable tie-up of the telephone facilities at both places. Recommendation to this effect was to be made separately for consideration of the Airport Committee at the Central Office.

98. Procedure in Connection With Closing Airway Substations: It was agreed that where it is necessary to close substations, consent of the airline and airline inspectors should be obtained by the general supervising official and publication then to be made in Notices to Airmen and the Central Office notified. The Central Office is to be given fifteen days' notice in cases involving the closing of off-airway and six-hourly stations so that all details might be handled properly.

99. Preparation and Distribution of Duplicated Weather Maps: The question of distribution of ditto maps was taken up and it was the consensus of all concerned that the present system should be continued as may be necessary, although there was considerable sentiment in favor of completely discontinuing these. Mr. Minser of the TWA suggested that perhaps it would be well to make a small map, showing only wind, temperature and pressure from surrounding local stations for particular use of the pilots, but consideration of this indicated that it would involve considerable extra work and was not generally favored. However, Mr. Minser will bring this matter before the Airline Meteorological Committee for further consideration and report to the Weather Bureau.

100. Distribution of the British "Quarterly Journal": Stations are extremely anxious to be listed to receive the British Quarterly

Journal as this contains many items concerning advanced meteorology which are invaluable to the airway work. If done, it was suggested that a copy be furnished to each general supervising district to be circulated among the stations in the district, and finally deposited at the general supervising stations. It was believed advisable that this matter should be referred to the Weather Bureau Library for consideration.

101. Possible Increase in Number of Stations to Report 5,000-Foot Pressures: The establishment of more stations to report 5,000-foot pressures was discussed and it was strongly advocated that the present limit on 5,000-foot pressure-reporting stations be lowered to possibly as much as to include all stations at 2,000 or more feet elevation. No definite decision could be made in this matter, but it was agreed that it would be given further consideration at the Central Office. It was agreed that all stations at elevations above 5,000 feet, now sending sea-level pressure, should also send the 5,000-foot pressure. There was considerable advocation for reducing pressures upward to the 5,000-foot plane by all stations in the United States but as there was not sufficient information concerning the practicability of this available at the conferences, it was decided to refer this to the proper personnel at the Central Office for consideration.

102. New Six-Hourly Station Between San Diego and Yuma: Mr. French of the Burbank station strongly advocated the establishment of a new station between San Diego and Yuma for 5,000-foot pressure reporting and it was decided that he make formal recommendation in this connection to the Central Office.

103. List of Elevations of Stations: It was requested that the Central Office furnish a complete list of weather reporting station elevations in North America, giving the latitudes and longitudes for Mexican and Canadian stations. It is understood that action to that end has been taken.

104. Possibility of Obtaining 5,000-Foot Pressures From Calgary: Further, in connection with the 5,000-foot pressures, it was thought that these might possibly be obtained from the Canadian station at Calgary and it was recommended that a letter should be written to the Canadian Meteorological Service, requesting advice as to whether this would be practicable.

105. Mexican Weather Report Distributions: Mexican reports are extremely valuable to the airway service in the southwestern part of the country and the present system of distribution of these reports is not entirely satisfactory. As a substitute therefor, it appears that the Navy is receiving these reports at or near San Francisco by radio, and relaying them to that office where they would be available for transmission by teletype to Burbank, and from Burbank to Fort Worth and Kansas City. It was

decided that the San Francisco office would make a report in this matter to the Central Office, which, upon receipt of this, if found practicable, a special group of these Mexican reports would be set up under the six-hourly airway circular permitting their distribution by teletype to the points mentioned above.

106. Forecasts for Icing Conditions: It was decided that regional forecasts should carry as complete a forecast as possible concerning icing conditions given in three degrees, viz., light, moderate and heavy icing. In doing this, the elevations of the 0°C. isotherm should be indicated and the geographical extent of the icing be given so far as practicable.

107. Question of Eliminating Indeterminate Words From Airway Forecasts: The matter of eliminating the terms "possibly" and "probably" and other indeterminate words from airway forecasts was discussed, but as it was demonstrated that under certain conditions their use is quite necessary, it was decided to take no action in this direction at this time.

108. Report of Inspection Committee: At this point, the Inspection Committee turned in their complete report regarding revising of inspection procedure and the issuance of uniform regulations covering this. This will be considered at the Central Office and a special circular of instructions issued at a later date.

109. Action in Connection With Requisitions From General Supervising Stations: Several of the general supervising officials stated that apparently their requisitions for supplies, materials, forms, etc., were sometimes reduced at the Central Office. It was requested and recommended that no reductions be made in such requisitions, unless specifically approved by the Aerological Division of the Central Office, or the quantity required cannot be furnished due to a reduced stock on hand.

SATURDAY, DECEMBER 3, 1938

110. Inflation and Launching of Pilot Balloons: Apparently, there are no instructions regarding the best method as to inflation of balloons, lighting of lanterns and launching of balloons with lanterns attached and it was suggested by all concerned that such instructions should be promulgated. Also, it was pointed out that the present balances of the scales are not taking care of the weight of the lanterns and there are no definite instructions covering procedure in these cases.

111. Shipping of Balloons: It was suggested that perhaps balloons should be shipped directly from the manufacturer to stations but the impracticability of this was pointed out by Mr. Little. The system of manufacturing these balloons was explained by Mr. Little for the information of all concerned.

112. Leaving Pressure on Hydrogen Regulators: It was further agreed that Circular O should carry some statement about the pressure not being left on the hydrogen or helium regulators, as apparently this results in loss of gas and some danger to personnel at times.

113. Methods of Reducing Hydrogen Hazards: A complete discussion was held of the hazard involved in the use of hydrogen and where this gas is used in an inclosed room, it was agreed that all covers of electrical connections and switches should be gas-tight.

114. Time of Inflation of Balloons: Another point brought out was that balloons should not be inflated until just before observation. This not only results in loss of gas in some cases with resultant inaccurate observations, but also in danger of gas leaking and causing explosions.

115. Practice of Leaving Thoedolites Out at All Times Disapproved: The practice of leaving theodolites permanently anchored at the observation point was severely condemned, except in those places where it is impracticable to carry the theodolite back and forth from the shelter to the observation point. This condemnation was unanimous, due to the weathering of the instruments and general hard usage occasioned to them under such use in adverse weather conditions. A case was discussed, where the instrument had been brazed to a support with resulting warping of the plates and total throwing out of line of the various corrections to the instrument. General supervising officials are to make sure that their Inspectors understand the care to be given to theodolites.

116. Theodolites to be Checked at Regular Intervals: Also, it was found that in some cases, theodolites had not been checked for a year or more by personnel of the stations concerned. It was agreed that tests at frequent intervals should be included in instructions in Circular O and that all stations are to be guided thereby.

117. Recording Types of Theodolites: The recording type of theodolite was discussed and it was the consensus of opinion that these were not very practicable for Weather Bureau work.

118. Distribution of New Buff and Buff Theodolites: The new type of theodolite to be furnished by the Buff and Buff Company were originally designed as being of 28-power and it was decided that if these met specifications, they should be furnished to stations where particularly long runs could be obtained. The general supervising officials recommended that such instrument be located at Las Vegas, Abilene, Sault Ste. Marie, Huron, Ely, Fresno, Redding, Greensboro, Bismarck, Rapid City, Grand Junction, Key West, Elmira and Springfield, Mo., and to all radiosonde stations established this year or next.

119. Need for Dense Network of Pilot Balloon Stations: Methods of determining winds above cloud layers were discussed, and it was explained that this was one reason for having a dense network of pilot balloon stations to that in the event a station is prevented from getting observations because of clouds or precipitation, other stations might find it practicable to make runs, thus preventing an absolute loss of data for that area.

120. All Pilot Balloon Observations to be to as Great Height as Possible: It was agreed that present instructions should be changed to eliminate the inference that three runs may be short if one long run per day is taken. All runs should be as long as possible.

121. Methods of Shortening Transmission Time Required for Pilot Balloon Reports: In order to provide time for the transmission of pilot balloon reports from all stations on the teletype circuits, consideration was given to the reduction of the amount of data now sent in these reports. After considerable discussion, it was agreed that (1) surface wind should be eliminated; (2) only the three lowest odd levels above the ground should be sent, and (3) stations lying at an elevation of 500 or 1,000 feet above sea level are not to send 1,000 foot levels but in such cases, will send the 3,000, 5,000 and 7,000-foot levels. Instructions will be issued from the Central Office.

122. Methods for Shortening Remarks in Sequence Reports: At present, it often occurs that the length of the remarks added to sequence reports is three or four times the length of an actual sequence report itself and involves the loss of considerable circuit time. It was agreed that standard lists of remarks should be made up and given numbers, such numbers to indicate the particular remark in question, and which will be sent on the teletype in lieu of the remarks. If two remarks must be sent, the two groups of numbers will be entered, separated by a slant. The Air Transport Meteorological Committee will work up a list of these remarks for submission to the Central Office of the Bureau. The Civil Aeronautics Authority expected no difficulty in broadcasting such remarks if these lists can be posted near the broadcasting booth and readily referred to by the broadcaster. Similarly, the Weather Bureau personnel should have no trouble in deciphering the remarks and if lists of these are disseminated quite widely, pilots and others will be able to determine just that remarks are referred to by the number in the sequence reports.

123. Discontinuance of Use of Aneroid Barometers: The subject of aneroid barometers was taken up and since these are of little use at places where there is no mercurial barometer, it was recommended that they be discontinued at all stations where no mercurial barometer is located. Such stations would then no longer report pressure in their sequence reports. Proper instructions concerning this are to be issued from the Central Office.

124. Broadcast of Meteorological Barometric Pressures to be Discontinued: The broadcasting of meteorological barometric readings was discussed and it was decided that these were of very little use to pilots and other airline operations. Accordingly, it was agreed that the broadcast of these readings should be discontinued, notice to be given to all concerned of their discontinuance, prior to June 1, 1939, upon which date the discontinuance should become effective.

125. Transmission of Standard Atmosphere Pressures: It was agreed that these should be sent in inches and they should be entered in the sequences as part of the pressure group; that is, if both the meteorological pressure and the Standard Atmosphere pressure are sent, the meteorological pressures are sent first in three figures in millibars, separated by a slant from the following Standard Atmosphere three-figure group in inches.

126. "Single-Sequence" Transmission Groups and Broadcasts: It was finally agreed that the first group in single-sequence transmissions should include reports needed for meteorological use and for use of the Air Transport Companies in arranging for clearances of their planes, including reports from alternate airports required for this purpose. This would result in the relay of these particular reports as may be required. The general supervising officials are to furnish a list of the sequences they will need for forecast purposes in their districts, other than those which will be furnished to them under the six-hourly relay plan. Broadcasts under the "single-sequence" plan will be made by the Civil Aeronautics Authority apparently at 40 and 45 minutes past the hour, with local broadcast being made at ten minutes after the hour.

127. Transmission of Map Reports by Teletype from the Down Town Chicago Weather Bureau Office: In order that transmission of map reports from Chicago by teletype might be expedited and so that there will be no intermixing of eastern and western groups, it was deemed extremely desirable that a second teletype circuit, to be paid for by the Weather Bureau, be established between the Chicago Weather Bureau Office and the Airport and that provision be made to have two men on duty at the Chicago City Office during all map report transmission periods, one of these men to work on the reports going to the western circuits and the other to work on reports going to the eastern circuits. It is believed that funds for doing this are available and further specific recommendations will be made to the Chief of Bureau in connection therewith.

128. Three Groups to be Made of "Single-Sequences" When Necessary: In cases where under the "single sequence" plan it would be necessary to have groups of reports which are relayed nationally and another group of reports which would need to be relayed quite universally in a local area followed by reports which would not need to be relayed at all, it was agreed that three

groups should be made of the reports on such circuits, if found to be necessary. Otherwise, groups on the circuits will be confined to only two groups.

129. Combining of Teletype Circuits for More Efficient Distributions of Data and Information: Consideration was then given to the matter of combining of the teletype circuits so as to provide more efficient use thereof for broadcasting certain information at points where this is needed. In this connection, it was thought advisable that Circuits 23 and 15, 15 and 16, and 9 and 19, should be combined to provide better sequence and relay procedure facilities. Also, that Circuit 6 should be extended to include all stations from Muskegon to Buffalo, and that the proposed Boston to Bangor circuit should be part of Circuit 1. These changes are to be recommended by the Communication Supervisors to their central office and undoubtedly will come about as conditions permit. From the Weather Bureau's viewpoint, these combinations will be a distinct advantage over the present system and will permit relaying information quite easily to the points where this is required for use in forecasting and in air transport clearances.

130. Articles for Inclusion in Civil Aeronautics Authority "720 Hour Check": The matter of submitting articles for the "720 Hour Check" was taken up again during this meeting and it was decided that the Supervisors were to submit articles upon a monthly basis, for consideration for publication therein. It was stressed that such articles should be of an informative or instructive nature and should be useful in connection with improving the morale of observers in general.

131. Change in Headings of Regional Forecasts: The Civil Aeronautics Authority proposed that the present headings of the regional forecasts be changed to indicate merely the Weather Bureau supervising district to which it applied, rather than to list the terminal designators of all airways included therein. As this would result in a considerable saving of time on teletype circuits, it was believed that this plan would be satisfactory and the subject was left with the understanding that the Civil Aeronautics Authority would advise us thirty days in advance of the time they wish a change in these headings.

132. Regional Forecasts to be Transmitted Ahead of Terminal Forecasts: Since regional forecasts go to all circuits and terminal forecasts only to selected circuits, it was agreed that in all cases, regional forecasts should be prepared first by Weather Bureau forecasters and given to the Communications personnel for transmission, followed by the various terminal forecasts.

133. All Forecasts to be Terminated by Use of the Word "End": It was agreed that all forecasts, regional, terminal, etc., should be terminated by use of the word "end".

134. Times of Filing Airway Forecasts for Teletype Transmissions: Under the new National Communications System Schedule, to be effective April 1, 1939, it will be necessary that the transmission of the airway, regional and terminal forecasts be begun at 0400, 1000, 1600 and 2200, E. S. T., and, therefore, it will be necessary that the forecasters file their forecasts with the communications personnel at least five minutes in advance of these times.

135. Joint Inspections by Weather Bureau and Civil Aeronautics Authority Supervisors: The question of joint inspection of general supervising officials with Civil Aeronautics Authority communication supervisors was taken up and it was generally agreed that this plan would have high practical value in connection with the efficiency of the service. Accordingly, the supervisors present were instructed to request special authority for making such trips when occasion arises.

136. Signing of Civil Aeronautics Authority Station Registers: It appears that all Civil Aeronautics Authority stations maintain a station register of visitors and it is desired that all persons visiting the stations sign these. Weather Bureau personnel present were instructed that inspectors and others visiting the stations were to sign such registers.

137. Obtainment of Proper Clocks for Station Use: Apparently, many stations are having difficulty in obtaining suitable clocks for use in connection with the entry of sequence reports on the circuits and timing their observations. It was explained that the Central Office will honor requisitions for suitable clocks, with second hands, in all cases where these are deemed necessary by the general supervising officials or inspectors.

138. Preparation of Weather Bureau Forms by Civil Aeronautics Authority Personnel: It was pointed out that in a previous meeting it had been agreed that there may be a possibility of discontinuing Forms 1136, 1137, 1138 and 1141. However, there was no way in which Forms 1083 and 1001A could be eliminated, so far as preparation at Civil Aeronautics Authority stations was concerned, and it was agreed by the Communication Supervisors that the preparation of these Forms at Civil Aeronautics Authority stations would be continued.

139. Procedure in Connection with Accident Reports: The question of telegraphic reports in connection with accidents was taken up with the Civil Aeronautics Authority people and it was recommended that a letter be written to Mr. Hester, Administrator of the Authority, bringing up this question. In writing this letter, it was pointed out that question concerning reporting of accidents to itinerant and military aircraft were also to be settled and reference to these should be included therein.

140. Monitoring System for Weather Reports to be Established: In order to increase the accuracy of weather reports, it was recommended that one Weather Bureau commissioned station on each circuit be assigned to the task of checking weather reports originating and going over this circuit for meteorological discrepancies. To do this, a regular form will be developed at the Central Office and furnished to such stations for the reporting of the discrepancies, largely similar to the method now used by the Civil Aeronautics Authority in connection with communication discrepancies. It was also deemed advisable that forecast centers instruct the forecasters to jot down noted discrepancies in reports when they are making the maps and send these to the monitor stations, thus providing a double check on certain classes of reports.

141. Moving of Mercurial Barometers and Painting of Ceiling Projectors by Civil Aeronautics Authority Personnel Eliminated: Several cases of unauthorized moving of barometers by Civil Aeronautics Authority personnel have been reported and the seriousness of this was explained in detail to the Communication Supervisors present. They agreed that this should not be done under any circumstances and further agreed that instructions would be issued from their offices advising all of their stations not to move the barometers without authority, or in the absence of a competent Weather Bureau employee. Also, the painting of ceiling projectors by airway mechanicians has resulted, in many cases, of these becoming out of adjustment or so filling up the threads or screws as to prevent making of proper adjustments, and the Communication Supervisors agreed that they would also send instructions to their airway mechanicians to discontinue this practice.

142. Leases for Civil Aeronautics Authority and Weather Bureau Quarters at Airports to be Made Separately: The matter of Civil Aeronautics Authority and Weather Bureau quarters being held under one lease was discussed and the Civil Aeronautics Authority officials present advised that they desired to have a lease for their own quarters, the Weather Bureau to obtain their lease separately. This is satisfactory to the Weather Bureau and has been in practice for some time.

143. Civil Aeronautics Authority Personnel Authorized to Enter Initials and Times of Broadcasts of Local Weather on Forms 1130: In broadcasting local weather reports, the Civil Aeronautics Authority operators are instructed to enter the time of the broadcasts and their initials in some manner. This has been objected to by some Weather Bureau stations but it was agreed by all concerned that the practice of the Civil Aeronautics Authority operators of entering his initials and time of broadcast on Form 1130 was satisfactory and all stations should be guided accordingly.

144. Adjournment: The meeting adjourned at 5:30 p. m., Saturday, December 3, 1938.

145. Further Meetings for Developing a Revised National Communications Schedule: Owing to the necessity for developing a new National Communication Schedule and arranging other details in connection with the "on-sequence" plan, it was decided that Mr. Miller of the Weather Bureau Central Office should remain over with the Civil Aeronautics Authority Communication Supervisors to assist in this work. The first meeting in connection therewith was held on Monday, December 5, 1938, at which meeting all Civil Aeronautics Authority Communication Supervisors and Messrs. Miller and Andrus of the Weather Bureau were present. Details in connection with the new National Communication Schedule were discussed exclusively and reported in some detail in the Minutes of this meeting, as prepared by Mr. Larsen of the Civil Aeronautics Authority. After developing the new Schedule, it was found necessary to remain over until Tuesday, December 6, 1938, in order to have this placed in a presentable form by the draftsmen at the Civil Aeronautics Authority Regional Office at Kansas City and to have blueprints of the Schedule made for transmission to all concerned. Mr. Miller remained over to assist in this work.